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BOOK REVIEW

HORN, D.J. 1976. Biology of Insects. W.B. Saunders Company, Philadelphia. viii + 439 pp. \$13.95 U.S.

Why are books reviewed? There are many ways of answering this question, but in general the reviewer performs a service for colleagues by advising them on the usefulness of the book to their particular discipline, and perhaps saves them from purchasing unwanted books.

Because of the final recommendation I made about Horn's "Biology of Insects" I want to outline how I approached reviewing the book.

The first impression is good. The book has a fine colourful photograph of a monarch butterfly on the cover, has a good binding and the page paper is semiglossy and thick enough to stand considerable use.

In the preface Horn points out that he has not attempted to cover all aspects of insect biology, but has been "selective in trying to present entomology as a dynamic study of living organisms." He also acknowledges assistance from many people. I will return to the preface later.

Next, to the contents where there are three main parts, Insect Diversity, Insect Biology, and Insects and Human Affairs. Such a division is perhaps strange as both first and last parts must be subsidiary and part of the second - Insect Biology. However, the Chapters within these three parts are well arranged and follow each other logically.

I start reading the text and am pleasantly surprised. Horn writes very well, and importantly begins with a discussion of the scientific method by using a simple experiment involving termites in his back yard. He then moves very smoothly into a brief review of the history of entomology. This chapter, as do all others, ends with a single paragraph summary.

I was truthfully eager to begin the next chapter on evolution of insects and as expected from the standard of chapter one, it went well until Figure 2-1 which is of a generalized female grasshopper. Compared to similar diagrams in other introductory entomology texts, the figure is poorly done. The hind wings appear to arise from the metathorax and the pterothoracic segment appears to be composed each of two segments! The rest of the chapter reads well. Occasionally though, for the sake of clarity, some statements appear misleading. For instance, Horn writes that Onychophora have a "greatly reduced exoskeleton, leaving only the cuticle". Most entomologists, I hope, would consider the cuticle to be the exoskeleton.

Once again, it is a figure (2-10) that stops me reading. This one, redrawn from Snodgrass' "Principles of Insect Morphology" shows the hypothetical steps in the evolution of insects from annelid worms. Even though a sixth stage has been interpolated, the figure in no way illustrates the process of tagmatization as well as the original, because the connecting lines between the stages have been omitted.

Somewhat less at ease, I continue with the text, only to come across a bombshell in Figure 2-12. This figure is a dendrogram of insect evolution. Here, clearly labelled so that no one can be mistaken, are the Thysanura as Pterygota! That appears to be a simple error in type setting. Less easy to explain is the placing of the Mallophaga in the orthopteroid orders and the Anoplura in the hemipteroid orders!

By now I am intrigued enough to stop reading the text at page 30 and begin looking only at the figures. What's this – Fig. 2-13 shows Lepidoptera larvae with all abdominal segments possessing prolegs!

Legs and where they arise are one of the major faults with almost all of the line drawings. Admittedly the hind legs of many insects, although arising from the metathorax, when viewed dorsally do appear to arise from the anterior abdomen. However, that this is not so is usually indicated by the proximal leg segments being hidden by the abdomen. It is startling therefore to find hind legs complete with coxae arising from the second abdominal segment of an embiopteran in Fig. 3-18.

In general there is a lack of attention to important details in the figures. This shows particularly in the line drawings of insects in the section on major insect groups. Wing venation is poorly indicated or completely wrong. The general habitus of many of the insects is sufficiently bad as to preclude any immediate recognition. My main interest is in Simuliidae or blackflies and I was appalled at Fig. 3-83 which purports to show a blackfly adult but lacks most mouthparts and has a wing venation unlike any blackfly known. The problem is compounded by Fig. 8-10 which is an insult to anyone who has ever seen a blackfly larva. The animal drawn does not exist!

Why should the figures be so bad? Here I return to the preface where Horn acknowledges that Alice Kolbe copied nearly all of the drawings from his own very scratchy, cryptic sketches. Kolbe apparently had no entomological background and changed the sketches to satisfy artistic whims. The few line drawings done by Horn himself are adequate and accurate.

The poor copying of figures either by Kolbe or Horn extends beyond whole insects. For example in Fig. 5-7 of longitudinal sections of the compound eye, the rhabdom appears as a solid body, rather than made up of a number of rhabdomeres. Similarly, other figures of sensory organs are poorly done or just down right inaccurate.

Unfortunately, the above comments apply in part to the photographs as well. Many photographs have been copied from other sources and are good, but those apparently produced by Horn are usually out of focus or show extreme depth-of-focus problems. Some of the specimens were clearly dead and either show pin holes or have parts missing. Once again, Horn acknowledges the help of Robert Dowell who printed the original photographs, some from fuzzy negatives.

I finally returned to reading the text at page 30, but all pleasure was now gone. The poor figures constantly distracted me with more mistakes than I care to list here. However, Horn does have a good text with few factual errors.

My enthusiasm for this book returned somewhat in Part Three: Insect and Human Affairs. Here Horn is clearly at home and the figures and photographs are better.

With such a good text, why Horn allowed poor figures and photographs to be published is an interesting question. There has been a high standard for illustrations set by other introductory texts on entomology and "Biology of Insects" falls well below that level.

To refer back to my original question about the function of a review, I must with all candor say that this book is not to be bought under any circumstances. To do so would be to foist upon undergraduate students a rather shoddy example of poor draftsmanship and even worse proof-reading. The editors of this book have done Entomology and D.J. Horn a grave disservice by allowing it to be published. If the book is ever reprinted with corrections made to virtually all figures it should then become an extremely useful and well-written textbook.

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